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EXAMINER

LI, ZHUO H

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2185

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

Response to Amendment

1. This office action is in response to the decision of petition mailed 7/24/2009 and amendment filed 6/19/2009.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1, 4, 5, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lo et al. (US PAT. 6,324,178 hereinafter Lo) in view of Smith (US 6,961,890) and Gillard et al. (US PAT. 5,404,166).

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Regarding claim 1, Lo discloses a method for the management of data received via a serial data bus (240 or 250, figure 2A) in a receiving device (220, figure 2A and col. 4 line 47 through col. 5 line 14) comprising the steps of receiving data transmitted in bus packets having a variable length (col. 5 lines 24-35, data packets of a first communication domain are different from data packets of a second communication domain such that data packets received in the receiving device are obviously in variable length), each bus packet having a header (322, figure 3A) and a payload data field (324, figure 3A), the payload data field being divided into a plurality of data blocks having a defined length (data blocks and each data block has 32 bits, figure 8A), a combination of a defined number n of data blocks forming a data source packet of fixed length (col. 8 line 6 through col. 9 line 9, i.e., assembly a new data packet by a combination of a defined number n of block), section-by-section transmission of the data source packet within the framework of data blocks being permitted (col. 9 lines 10-40, i.e., accessing data payload field and broadcasting data until termination). Lo differs from the claimed invention in not specifically teaching a data block consisting of a plurality of data words and the plurality of data words being a fixed amount. However, it is old and notoriously well known in the art of having a data block consisting of a plurality of data words and the plurality of data words being a fixed amount, for example see Smith (figures 1-2 and col. 3 line 49 through col. 5 line 17, i.e., a data block, 100 or 200, consisting a plurality of data words, 202 or 204, the plurality of data words being a fixed amount, such as 16 bit code or 24 bit code) in order to provide the data integrity required in response to changing condition. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Lo in having the data block

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consisting of a plurality of data words and the plurality of data words being a fixed amount, as per teaching of Smith, in order to provide the data integrity required in response to changing condition. The combination of Lo and Smith differs from the claimed invention in not specifically teaching the step of carrying out a modulo-n counting of the data blocks in order to determine the data source packet boundaries, and in that the beginning of a new data source packet is signaled to a memory management device at the beginning of the next counting interval. However, Gillard teaches subsequent storage of data or error correction encoding generally operating on fixed length data word (col. 1, lines 23-25) such that one skill in the art would recognize each data block within the payload data field as shown on Lo consisting of a plurality of data words being a fixed amount as taught by Gillard. In addition, Gillard teaches carrying out a modulo-n counting of the data blocks in order to determine the data source packet boundaries, and in that the beginning of a new data source packet is signaled to a memory management device at the beginning of the next counting interval, i.e., format accumulator (120) generates a 5-bit output signal representing a modulo-32 count of the code length received during the formatting of a current data block, count accumulator (125) maintains a count of the cumulative lengths of payload data field related to the video data stream, these counts are then summed to generate a total count, when the total count reaches the available length of the video data section, and end of block signal is generated by the count accumulator, a boundary accumulator (126, figure 3) incorporate with pointer, count accumulator and header with starting address indicative of the position of the video data, to determining the end of each variable length video data stream in a fixed length blocks (col. 4 line 34 through col. 5 line 35), thereby providing

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data format conversion in a way that keep pace with the overall data rate. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combination of Lo and Smith in carrying out a modulo-n counting of the data blocks in order to determine the data source packet boundaries, and in that the beginning of a new data source packet is signaled to a memory management device at the beginning of the next counting interval, as per teaching of Gillard, in order to provide data format conversion in a way that keep pace with the overall data rate.

Regarding claim 4, the combination of Lo, Smith and Gillard differs from the claimed invention in not specifically teaches wherein the defined number n of data blocks of a data source packet corresponds to the number 8 and the modulo- n counting is correspondingly modulo-8 counting. However, it is old and notoriously well known in the art of having the defined number of n data blocks corresponding to the number of 2 to power x , where $x = 1, 2, 3, \dots$, in which 8 is equal to 2 to power 3. In addition, utilizing modulo-8 counter do not have a disclosed purpose nor overcome any deficiencies in the prior art such that the number of n of data blocks of a data source packet may contain any number, i.e., 2, 4, 8, Noted Gillard teaches the variable video data frame stored in a plurality of fixed length data block in 8-bit data words (col. 5 line 55 through col. 6 line 1), and count accumulator (125) maintains a count of the cumulative lengths of payload data field related to the video data steam, these counts are then summed to generate a total count, when the total count reaches the available length of the video data section, and end of block signal is generated by the count accumulator, a boundary accumulator (126, figure 3) incorporate with pointer, count accumulator and header with starting address indicative of the position of the video data, to determining the end of each

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variable length video data stream in a fixed length blocks (col. 4 line 34 through col. 5 line 35). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combination of Lo and Gillard in utilizing modulo-8 counter for counting 8 of data blocks of a data source packet, as disclosed supra, because applicant does not disclose that the number 8 and modulo-8 counting, as opposed to other size, overcome a deficiency in the prior art or for any stated purpose.

Regarding claim 5, the limitations of the claim are rejected as the same reasons set forth in claim 1.

Regarding claim 8, Gillard discloses the counter, i.e., count accumulator (125) by which data are counted in particular in units of bytes and which outputs a data block counting signal if the number of data that have been counted are as many as defined as belonging a data block (col. 4 line 34 through col. 5 line 35).

Regarding claim 9, Lo teaches IEEE 1394 serial bus communication standard becoming a popular standard adopted by manufacturers of computer systems and peripheral components for its high speed and interconnection flexibilities (col. 1 lines 31-35).

4. Claims 2-3 and 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lo et al. (US PAT. 6,324,178 hereinafter Lo) in view of Smith (US 6,961,890) and Gillard et al. (US PAT. 5,404,166) as applied in claims above, and further in view of Boyer et al. (US PAT. 5,410,546 hereinafter Boyer).

Regarding claims 2-3, the combination of Lo and Gillard differs from the claimed invention in not specifically teaches each bus packet being subject to CRC checking and

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the checking results being buffer-stored in order to be able to ascertain whether a data source packet transmitted in two or more bus packets has been transmitted without transmission errors, wherein a reference count reading is transmitted in each bus packet in order to check the completeness of the transmitted data, and in which comparison counting of the received data block is effected and, when the data block associated with the reference counter reading is received, the result of the comparison counting is compared with the reference counter reading and an error signal is output in the event of non-correspondence. However, Boyer discloses a data transferring device (figure 1) comprising a blocking/compression unit (105) compresses the data and transmits the data over bus (108) in packets to both Page CRC generator (101) for CRC generation and to page buffer memory (102) for temporary storage, and CRC checker (104) computes a CRC code for the entire page buffer as each byte is transmitted over bus (110) to block storage device (107), and may invoke appropriate error recovery procedures when it detects a compare error from CRC checker (col. 7 line 11 though col. 8 line 63).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combination of Lo and Gillard in having each bus packet being subject to CRC checking and the checking results being buffer-stored in order to be able to ascertain whether a data source packet transmitted in two or more bus packets has been transmitted without transmission errors, wherein a reference count reading is transmitted in each bus packet in order to check the completeness of the transmitted data, and in which comparison counting of the received data block is effected and, when the data block associated with the reference counter reading is received, the result of the comparison counting is compared with the reference counter reading and an

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error signal is output in the event of non-correspondence, as per teaching by the data transfer device of Boyer, because it assures the integrity of the data at all times between receipt from the compression unit and transmission to the storage device, and permits these CRC computations and combinations to proceed as the data is received without loss of performance at the high data rates common in current high density tape storage subsystem (col. 5 lines 28-34).

Regarding claims 6-7, the limitations of the claims are rejected as the same reasons set forth in claims 2-3.

Response to Arguments

5. Applicant's arguments filed 6/19/2009 have been fully considered but they are not persuasive.

In response to applicant's argument that it is not obvious for a skilled person to combine the teaching of Lo, Smith and Gillard to arrive the claimed invention because the combination of Lo and Smith does not teach and suggest the claimed feature "the payload data field being divided into a plurality of data blocks having a defined length, a data block consisting of a plurality of data words," as recited, examiner respectfully disagrees. First, Lo clearly teaches the payload field as shown in figure 8A includes more than one data block such that the payload field includes data block quadlet 1 and other data block quadlets. Thus, Lo discloses that the payload field includes multiple data block. Second, the combination of Lo and Smith does teach the claimed feature as recited in the claimed invention. Lo clearly teaches each bus packet having a header (322, figure 3A) and a payload data field (324, figure 3A), the payload data field being divided into a

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plurality of data blocks having a defined length (data blocks and each data block has 32 bits, figure 8A). Lo differs from the claimed invention in not specifically a data block consisting of a plurality of data words. However, Smith teaches a data block consisting of a plurality of data words and the plurality of data words being a fixed amount (figures 1-2 and col. 3 line 49 through col. 5 line 17, i.e., a data block, 100 or 200, consisting a plurality of data words, 202 or 204, the plurality of data words being a fixed amount, such as 16 bit code or 24 bit code) in order to provide the data integrity required in response to changing condition. Thus the combination of Lo and Smith teaches the payload data field being divided into a plurality of data blocks having a defined length, a data block consisting of a plurality of data words," as recited.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

In view of at least the foregoing, examiner submits that claim 1 is rejected under the combination of Lo, Smith and Gillard. Independent claim 5 is also believed to be rejected because it contains similar features as claim 1. Claims 8 and 9 are also be rejected because they depend from claim 5, with each claim containing further features.

In response to applicant's argument that Boyer does not, in any way, cure the above deficiencies found in Lo, Smith or Gillard, it is noted that Boyer is utilized for

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teaching the claimed features as recited in claims 2-3 and 6-7. Since the combination of Lo, Smith and Gillard teaches the claimed features as recited in claims 1 and 5, claims 2-3 and 6-7 are rejected at least because they respectively depend from claims 1 and 5, respectively.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ZHUO H. LI whose telephone number is (571)272-4183. The examiner can normally be reached on Mon - Fri 6:00am - 2:30pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sanjiv Shah can be reached on 571-272-4098. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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